

U.S. Patent Application No. 10/571,081
Amendment dated January 10, 2008
Reply to Office Action of October 29, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for searching a drug to a bioactive protein using a cell-free protein synthesis means with the use of a wheat embryo extract solution comprising at least steps 3) to 5) of the following steps:

- 1) synthesizing a gene comprising a gene encoding the bioactive protein, wherein the step is based on base sequence information of the bioactive protein gene,
- 2) synthesizing an mRNA from the gene synthesized in step 1),
- 3) synthesizing the bioactive protein using a cell-free protein synthesis system with the use of a wheat embryo extract solution, using the mRNA synthesized in step 2) as a translation template or the gene synthesized in step 1) as a transcription template,
- 4) determining the reactivity of a candidate drug to the bioactive protein by adding the candidate drug to the cell-free protein synthesis system with the use of a wheat embryo extract solution, and
- 5) screening a drug to the bioactive protein by using the reactivity as an indicator,

wherein the bioactive protein is any one of the following:

- 1) an RNA polymerase, 2) a DNA polymerase, 3) a helicase, 4) a coat protein, or 5) a capsid protein; and

wherein the wheat embryo extract solution is a cell-free protein synthesis means with a wheat embryo extract from which an endosperm and a low molecular synthesis inhibitor are substantially removed.

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2. (Original) The method for searching a drug according to the claim 1, wherein the indicator of reactivity to the bioactive protein is based on the reactivity to bioactive protein's autodigestion.

3. (Original) The method for searching a drug according to the claim 1, wherein the indicator of reactivity to the bioactive protein is based on the reactivity to the bioactive protein's substrate recognition.

4. (Original) The method for searching a drug according to the claim 1, wherein the indicator of reactivity to the bioactive protein is based on the bioactive protein's autodigestion in a folding process, inhibition or termination of folding, or induction of misfolding.

5. (Original) The method for searching a drug according to the claim 1, wherein the reactivity of the candidate drug to the bioactive protein is selected from any one, two or more of the following:

- 1) a reaction of inhibiting or terminating a synthesis of the bioactive protein's mRNA in a transcription process,
- 2) a reaction of inhibiting and/or antagonizing autodigestion at one, two or more autodigestion site(s) in the bioactive protein,
- 3) a reaction of inhibiting and/or antagonizing the recognition of a substrate at one, two or more site(s) for recognizing a substrate in the bioactive protein,
- 4) a reaction of inhibiting or terminating the synthesis of the bioactive protein in a translation

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process,

5) a reaction of inhibiting or terminating the autodigestion or folding of the bioactive protein in a folding process, or a reaction of inducing misfolding,

6. (Previously presented) The method for searching a drug according to claim 1, wherein the steps 3) to 5) or 2) to 5) are conducted in a single reaction system.

7. (Canceled).

8. (Previously presented) The method for searching a drug according to claim 1, wherein the bioactive protein is a protein associated with pathogenic proliferation.

9. (Previously presented) The method for searching a drug according to claim 1, wherein the bioactive protein is a protease.

10. (Previously presented) The method for searching a drug according to claim 1, wherein the bioactive protein gene is a gene derived from any one of the following:

1) a double-stranded DNA virus, 2) a singled-stranded DNA virus, 3) a positive-stranded RNA virus, 4) a negative-stranded RNA virus, 5) a double-stranded RNA virus, 6) a retrovirus, and 7) a hepadnavirus.

11. (Canceled).

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12. (Previously presented) The method for searching a drug according to claim 1, wherein the bioactive protein gene is derived from SARS.

13. (Withdrawn) A drug provided by the method for searching a drug according to claim 1.

14. (Withdrawn) A reagent kit used in the method for searching a drug according to claim 1.

15. (Withdrawn) An oligonucleotide primer to amplify a SARS 3CL^{pro} protein-encoding DNA.

16. (Withdrawn) The oligonucleotide primer according to the claim 15, comprising any one of nucleotides represented by SEQ.ID.Nos: 6-21.

17. (Withdrawn) A SARS 3CL^{pro} protein-encoding DNA synthesized by using the oligonucleotide primer according to the claim 15.

18. (Withdrawn) The SARS 3CL^{pro} protein-encoding DNA according to the claim 17, represented by SEQ.ID.No:1.

19. (Withdrawn) A SARS 3CL^{pro} protein synthesized using a cell-free system with the use of a wheat embryo extract solution, using the DNA according to the claim 17.

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20. (Withdrawn) The SARS 3CL^{pro} protein according to the claim 19, sustaining a protease activity.